AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1. (CURRENTLY AMENDED) An image processing method for obtaining a layout image signal representing a layout image, in which a plurality of person images are laid out, from a plurality of original image signals, each of the original image signals representing a person image, in which a face pattern of a person is embedded, the method comprising the steps of:

i) detecting a face candidate region from each of the original image signals, said face candidate region representing a position and/or a size of the face pattern of the person in the person image represented by each original image signal~~, wherein the detecting step includes detecting edges in the face pattern and binarizing the original image signal corresponding to the face pattern~~;

ii) performing a pattern matching process for each face pattern represented by said detected face candidate region ~~using the binarized face candidate region~~ to calculate an amount of displacement and/or a size difference thereof from a ~~normalized value~~ predetermined reference image;

iii) performing a face pattern normalizing process on each of the original image signals based on said detected face candidate region and said calculated amount of displacement and/or the size difference such that a

center position having coordinates (x, y) in the face pattern embedded in the person image into a center position having coordinates (x0, y0) in the predetermined reference image, a plurality of normalized image signals being obtained from said face pattern normalizing process; and

iv) laying out a plurality of images, which are represented by said normalized image signals, in a predetermined layout such that the plurality of image signals are laid out side by side, whereby the layout image signal representing the thus formed layout image is obtained.

2. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein said face pattern normalizing process is performed by utilizing affine transformation.

3. (CURRENTLY AMENDED) An image processing apparatus for obtaining a layout image signal representing a layout image, in which a plurality of person images are laid out, from a plurality of original image signals, each of the original image signals representing a person image, in which a face pattern of a person is embedded, the apparatus comprising:

i) detection means for detecting a face candidate region from each of the original image signals, said face candidate region representing a position and/or a size of the face pattern of the person in the person image represented

by each original image signal~~, wherein said detecting means includes edge detection means for detecting edges in the face pattern and includes binarization means for binarizing the original image signal corresponding to the face pattern~~;

ii) pattern matching means for performing a pattern matching process for each face pattern represented by said detected face candidate region ~~using the binarized face candidate region output from said binarization means~~ to calculate an amount of displacement and/or size difference thereof from a ~~normalized value~~ predetermined reference image;

iii) normalization means for performing a face pattern normalizing process on each of the original image signals based on said detected face candidate region and said calculated amount of displacement and/or the size difference such that a center position having coordinates (x, y) in the face pattern embedded in the person image into a center position having coordinates (x0, y0) in the predetermined reference image, a plurality of normalized image signals being obtained from said face pattern normalizing process; and

iv) editing means for laying out a plurality of images, which are represented by said normalized image signals, in a predetermined layout such that the plurality of image signals are laid out side by side, and obtaining the layout image signal representing the thus formed layout image.

4. (PREVIOUSLY PRESENTED) The apparatus according to claim 3, wherein said normalization means performs the face pattern normalizing process by utilizing affine transformation.

5. (CURRENTLY AMENDED) A recording medium, on which a program for causing a computer to execute an image processing method has been recorded and from which the computer is capable of reading the program, the image processing method comprising obtaining a layout image signal representing a layout image, in which a plurality of person images are laid out, from a plurality of original image signals, each of the original image signals representing a person image, in which a face pattern of a person is embedded, wherein the program comprises the procedures of:

i) detecting a face candidate region from each of the original image signals, said face candidate region representing a position and/or a size of the face pattern of the person in the person image represented by each original image signal~~, wherein the detecting step includes detecting edges in the face pattern and binarizing the original image signal corresponding to the face pattern~~;

ii) performing a pattern matching process for each face pattern represented by said detected face candidate region ~~using the binarized face~~

~~candidate region~~ to calculate an amount of displacement and/or a size difference thereof from a ~~normalized value~~ predetermined reference image;

iii) performing a face pattern normalizing process on each of the original image signals based on said detected face candidate region and said calculated amount of displacement and/or the size difference such that a center position having coordinates (x, y) in the face pattern embedded in the person image into a center position having coordinates (x0, y0) in the predetermined reference image, a plurality of normalized image signals being obtained from said face pattern normalizing process; and

iv) laying out a plurality of images, which are represented by said normalized image signals, in a predetermined layout such that the plurality of image signals are laid out side by side, whereby the layout image signal representing the thus formed layout image is obtained.

6. (PREVIOUSLY PRESENTED) The recording medium according to claim 5, wherein said face pattern normalizing process is performed by utilizing affine transformation.

7-12. (CANCELED)

13. (PREVIOUSLY PRESENTED) The image processing method according to claim 1, wherein each of the plurality of normalized image signals have a normalized person image such that each of the normalized person images are all substantially the same size.

14. (PREVIOUSLY PRESENTED) The image processing method according to claim 1, wherein each of the plurality of person images that are laid out correspond to each of the original image signals in which each original image signal represents a person image, and wherein the plurality of normalized image signals that are obtained from said face pattern normalizing process are based solely on the corresponding original image signals.

15. (PREVIOUSLY PRESENTED) The image processing apparatus according to claim 3, wherein each of the plurality of normalized image signals have a normalized person image such that each of the normalized person images are all substantially the same size.

16. (PREVIOUSLY PRESENTED) The image processing apparatus according to claim 3, wherein each of the plurality of person images that are laid out correspond to each of the original image signals in which each original image signal represents a person image, and wherein the plurality of

normalized image signals that are obtained from said face pattern normalizing process are based solely on the corresponding original image signals.

17. (PREVIOUSLY PRESENTED) The recording medium according to claim 5, wherein each of the plurality of normalized image signals have a normalized person image such that each of the normalized person images are all substantially the same size.

18. (PREVIOUSLY PRESENTED) The recording medium according to claim 5, wherein each of the plurality of person images that are laid out correspond to each of the original image signals in which each original image signal represents a person image, and wherein the plurality of normalized image signals that are obtained from said face pattern normalizing process are based solely on the corresponding original image signals.

19. (NEW) The image processing method according to claim 1,

wherein the step of detecting the face candidate region from each of the original image signals comprises detecting edges in the face pattern and binarizing the original image signal corresponding to the face pattern to generate a binarized face candidate region, and

wherein the step of performing the pattern matching process for each face pattern represented by the detected face candidate region comprises using the binarized face candidate region to calculate the amount of displacement and/or the size difference from the predetermined reference image.

20. (NEW) The image processing method according to claim 1, wherein the step of performing the face pattern normalizing process on each of the original image signals based on the detected face candidate region further comprises:

uniformizing a size v in a vertical direction of the face pattern based on the size difference from the predetermined reference image; and

uniformizing a size h in a horizontal direction of the face pattern based on the size difference from the predetermined reference image.

21. (NEW) The image processing apparatus according to claim 3,

wherein the detecting means comprises edge detecting means configured to detect edges in the face pattern and binarization means configured to binarize the original image signal corresponding to the face pattern to generate a binarized face candidate region, and

wherein pattern matching means is configured calculate the amount of the displacement and/or the size difference from the predetermined reference image using the binarized face candidate region.

22. (NEW) The image processing apparatus according to claim 3, wherein the normalization means is configured to uniformize a size v in a vertical direction and a size h in a horizontal direction of the face pattern based on the size difference from the predetermined reference image.

23. (NEW) The image recording medium according to claim 5,

wherein the procedure of detecting the face candidate region from each of the original image signals comprises detecting edges in the face pattern and binarizing the original image signal corresponding to the face pattern to generate a binarized face candidate region, and

wherein the procedure of performing the pattern matching process for each face pattern represented by the detected face candidate region comprises using the binarized face candidate region to calculate the amount of displacement and/or the size difference from the predetermined reference image.

24. (NEW) The image recording medium according to claim 5, wherein the procedure of performing the face pattern normalizing process on each of the original image signals based on the detected face candidate region further comprises:

uniformizing a size v in a vertical direction of the face pattern based on the size difference from the predetermined reference image; and

uniformizing a size h in a horizontal direction of the face pattern based on the size difference from the predetermined reference image.

25. (NEW) The image processing method according to claim 1, wherein the step of performing the face pattern normalizing process on each of the original image signals based on the detected face candidate region further comprises:

identifying two points (x11, y11) and (x12, y12) of the person image in the original image signal having highest degree of correlation of two points (x21, y21) and (x22, y22) of the predetermined reference image, respectively;

determining transformation coefficients a, b, c, and d, by solving for formulas

$$x21 = ax11 + by11 + c,\ x22 = ax12 + by12 + c,$$

$$y21 = -bx11 + ay11 + d, \text{ and } y22 = -bx12 + ay12 + d, \text{ and}$$

calculating, for each position (x1, y1) of the person image in the original image signal, a normalized position (x2, y2) in the corresponding normalized image signal, wherein x2 = ax1 + by1 + c and y2 = -bx1 + ay1 + d.

26. (NEW) The image processing apparatus according to claim 3, wherein the normalization means is configured to

identify two points (x11, y11) and (x12, y12) of the person image in the original image signal having highest degree of correlation of two points (x21, y21) and (x22, y22) of the predetermined reference image, respectively,

determine transformation coefficients a, b, c, and d, by solving for formulas

$$x21 = ax11 + by11 + c,\ x22 = ax12 + by12 + c,$$

$$y21 = -bx11 + ay11 + d, \text{ and } y22 = -bx12 + ay12 + d, \text{ and}$$

calculate, for each position (x1, y1) of the person image in the original image signal, a normalized position (x2, y2) in the corresponding normalized image signal, wherein x2 = ax1 + by1 + c and y2 = -bx1 + ay1 + d.

27. (NEW) The image recording medium according to claim 5, wherein the procedure of performing the face pattern normalizing process on each of the original image signals based on the detected face candidate region further comprises:

identifying two points (x11, y11) and (x12, y12) of the person image in the original image signal having highest degree of correlation of two points (x21, y21) and (x22, y22) of the predetermined reference image, respectively;

determining transformation coefficients a, b, c, and d, by solving for formulas

$$x21 = ax11 + by11 + c,\ x22 = ax12 + by12 + c,$$

$$y21 = -bx11 + ay11 + d, \text{ and } y22 = -bx12 + ay12 + d, \text{ and}$$

calculating, for each position (x1, y1) of the person image in the original image signal, a normalized position (x2, y2) in the corresponding normalized image signal, wherein $x2 = ax1 + by1 + c$ and $y2 = -bx1 + ay1 + d$.